

Musa basin may be at present unknown, but the lower part appeared to be of little value. Several villages occupy the flooded country on the banks of the river; the houses are built on stilts a few feet above the water. The natives were friendly, but naturally shy and suspicious. They excel in making native cloth, many specimens of which were obtained. Their dead are interred in the villages, the graves being covered with a neatly thatched cage. They use palmwood spears, stone clubs, and adzes of jade. Both sexes wear a native cloth. The men wear the hair long, hanging down the back. They cook their food in clay pots, and eat lime and betel nut. The men were fairly strong and of good physique, but many were suffering from ringworm and hydrocele. They were anxious to trade, and offered adzes, clay pots, and sago for plane-irons. Some very remarkable pottery was obtained on the north-east coast. The examples are bowl-shaped with outside raised designs, not previously seen in any other part of British New Guinea. Besides these explorations the discovery of Pennegwa Harbour in the extreme north-east of Rossell Island, and a safe anchorage at Mabudaun, which very greatly increases the value of the western portion of the Papuan territory, were described. Mr. Thomson, by means of a map, indicated the territory dealt with in his paper, and at its conclusion a few pictures appropriate to the occasion were thrown on to the screen by Dr. Thomson.

In the course of some remarks, Sir William MacGregor suggested that Mr. Thomson might follow up his paper with another. The one he had just read did not embrace all the latest work that had been done. His (Sir William's) dispatches had not all been printed; in fact, he questioned whether some of them had yet reached his Excellency the Governor. There was a great deal of information which might be included in such a paper. For instance, Mr. De Vis had been examining a number of new and interesting native birds; Baron Von Müller had got a lot of new plants; but perhaps the most interesting, because the most practical, was the work being done by Mr. Jack and Mr. Rands. The geological specimens he had brought from the Purari River indicated a very large district in which there were very rich coal formations. The fossils that were under examination would show very clearly, he thought, the age of the deposit.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—In the lists of lectures announced for the present term, the most noteworthy feature is the removal of the subject of Anthropology from the list of the Faculty of Natural Science, and its insertion under that of *Literæ Humaniores*. The titles of the Anthropological lectures are "The Intellectual Development of Mankind," by Dr. Tylor; "The Elements of Physical Anthropology," by Prof. A. Thomson; and "Primitive Musical Instruments," by Mr. H. Balfour. There does not appear to be any adequate reason for considering that these subjects should belong to letters rather than to Natural Science, but perhaps it is a sign that a day is approaching when all the subjects of Natural Science will be recognised as forming as much a part of *literæ humaniores*, that is, of indispensable culture, as Philosophy and Ancient History. In the departments of Natural Science there is no change of importance to chronicle. Professors, Lecturers, and Demonstrators are the same as in the past academical year, and the subject-matter of the lectures refers in each case to the examinations in the Honours School of Natural Science. Mr. R. T. Günther is in residence at Magdalen College as Science Tutor, and Mr. W. Garstang is in residence at Lincoln College, and will deliver a course of lectures as Lecturer in Natural Science to the College.

The examination for the Burdett-Coutts Scholarship will be held in the week beginning October 21.

The Vice-Chancellor has appointed Mr. William Holman Hunt the Romanes Lecturer for the year 1895.

A COPY of the report of the Minister of Public Instruction in New South Wales, for the year 1893, has reached us. The work of the Technical Education Board for that year was carried on under very different conditions from those of previous years. The scheme for retrenchment of expenditure in the public service led to the reduction of the vote for Technical Education from £49,800 in 1892, to £25,367 in 1893. The field of operations had therefore to be confined within comparatively

narrow limits. Only 187 classes were carried on throughout the whole year, and the total number of students was 7096. In addition to the ordinary class work, popular lectures on various subjects were given at different centres throughout the colony. The success of these lectures may be judged from the fact that the Rev. J. Milne Curran lectured in Geology and Mineralogy to audiences aggregating 13,360 persons, or an average of over 300 persons at each lecture.

THE *Record of Technical and Secondary Education* completes its third volume with the current number. The journal was only started tentatively, but the experience gained during the last three years has shown that it is wanted, so it will be continued. The present number is full of information of use to promoters of technical education. It includes the reports of the technical instruction committees of Somerset, Hampshire, Isle of Wight, Staffordshire, and Worcestershire. Mr. W. E. Urwick gives a description of primary and secondary education in France, first tracing the progress of an imaginary boy from the primary school upward, and then detailing the means of transition from one school to another, the help offered by the State, and the method of procuring it. So many committees have had to confess that their schemes of agricultural education have, to say the least, been unsuccessful, that an article on the promotion of such instruction in Great Britain should be widely read. It is pointed out that elementary agricultural education must be founded definitely on science, though this may be elementary. The subjects likely to be of most use are chemistry, botany, and zoology. Mathematical subjects should, if only as a matter of education, engage earnest attention, and it is suggested that elementary physics, leading up to the construction of the steam engine, might replace botany or zoology in the curriculum. There must always be stations for field demonstrations and experiments, and this class of work is of a threefold nature. "First, there is the demonstration of the known action of certain elements of plant food when used in manures; it is this which is truly educational. Next comes what may fairly be called experiment, viz. the testing in each locality of the action of different manures on different crops or typical soils. Lastly, there is pure research into the unknown, a matter which can only be successfully carried out at special places, thoroughly well-equipped for this particular purpose. While, however, it is to be hoped that Rothamsted will always form the premier research station for the kingdom, there would seem to be no reason why stations such as that which the Royal Agricultural Society have at Woburn might not, within limits, be multiplied." In addition to the articles already referred to, the *Record* contains an illustrated description of the fine Technical College at Bradford.

THE "Guide to Technical and Commercial Education," first issued by the Dundee and District Association for the Promotion of Technical and Commercial Education some five years ago, and the third edition of which has recently been published, has done good service. The object of the guide was to indicate the lines along which apprentices might with advantage be urged to a systematic continuance of their education in subjects bearing on their particular occupations. In point of fact, the aim of the Committee was to do for the apprentice architect, engineer, mechanic, or other craftsman, in the Technical School, what long ago in the Universities has been done for the professions by the institution of definite lines of study. Several Technical Instruction Committees have drawn up similar courses of study to be followed by young artisans in order to become efficient workmen; and when such schemes are properly drafted, they serve a very useful purpose.

SCIENTIFIC SERIALS

Quarterly Journal of Microscopical Science, vol. xxxvi. part 4, August.—In the first of a series of "Studies on the Nervous System of Crustacea," Mr. Edgar J. Allen gives the results of a careful investigation of the structure of the brain and ganglionic chain in lobster embryos. By the employment of Ehrlich's methylene blue method he has been able to demonstrate the course of the constituent nerve-fibres, both co-ordinating, motor, and sensory, with remarkable success. The author's observations agree with those of Retzius, Kölliker, and other recent investigators, as to the absence of any form of anastomosis between the fibres of different elements. Nervous discharges must, however, pass from one element to another by

means of the finer terminal fibrils, which are shown to be frequently arranged in the form of distinct tufts, having a constant position relative to each other. On this account the author hazards the suggestion "that the nervous energy resembles a static electrical charge, in the fact that the discharge takes place most readily through points," the opposing tufts of fibrils of different elements being thus comparable to the "brushes" of an electrical machine. In the second and third of his "Studies," Mr. Allen deals with the Stomatogastric System of *Astacus* and *Homarus*, with the Beading of Nerve-fibres, and with End Swellings.—Other papers in the same number are by Mr. E. A. Andrews, on some abnormal annelids, and Mr. W. E. Collinge, on the sensory canal system of Ganoids. All these papers are admirably illustrated.

American Meteorological Journal, September.—On cloud formation, by Prof. W. von Bezold. This is a translation, by L. A. Bauer, of an address delivered in the "Urania" of Berlin, November 29, 1893, and published in *Himmel und Erde*, vol. vi. No. 5. (We gave a brief notice of this valuable paper in vol. xlix. p. 508.) Prof. von Bezold's explanations of the formation of fogs and clouds are exceedingly interesting and instructive, and the translation into English will be of great use to many readers who may be unacquainted with German. Several of the cloud views have been made in Berlin expressly for this article.—Summer hot winds on the Great Plains, by J. M. Cline, M.D. This paper has been reprinted from the *Bulletin of the Philosophical Society of Washington*, vol. xii. 1894, and contains an account of the hot winds observed from 1874 to 1892, and of the general meteorological conditions prevailing at the time of their occurrence, together with a description of the general characteristics of those hot winds, and conclusions as to their causes.—The meteorological services of South America, by A. L. Rotch. The countries in which meteorological observatories and central stations exist are Peru, Chile, Argentine Republic, Uruguay, and Brazil. Those dealt with in this article are Peru, in which is situated the observatory of *El Misti*, the highest station in the world, and Chile, of which the National Observatory is at Santiago, and was founded by the United States Transit of Venus Expedition in 1848.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, October 8.—M. Lœwy in the chair.—On the eccentricity of the orbit of Jupiter's fifth satellite, by M. F. Tisserand. If a be the great semi-axis, e the eccentricity, and ω_0 the longitude of perijove at a certain epoch (October 28, 1892), we have, as a first approximation,

$$a = 47''\cdot906, e = 0\cdot0073, \omega_0 = -14^\circ.$$

—On the groups of transformations of differential linear equations, by M. Émile Picard.—Theory of flow on a weir without lateral contraction, when the bending liquid sheet is either depressed, submerged below, or adherent to the weir, by M. J. Boussinesq.—On the propagation of electromagnetic waves in ice, and on the dielectric power of this substance, by M. R. Blondlot (see Notes, p. 604).—Mean magnetism of the globe and "isonomes" of terrestrial magnetism, by M. Alexis de Tillo. The tables given show the mean value for the magnetic elements for parallels at 10° intervals for the years 1829, 1842, 1880, 1885.—M. Haton de la Goupillière informs the Academy that M. Cotteau has left his fine collection of fossil Echinoderms to the National School of Mines. This collection, combined with the Michelin collection, already at the School of Mines, will probably be the most complete of its kind.—On the dielectric power of ice, by M. A. Pérot. On recalculation of the results published on June 27, 1892, K assumes the value $2\cdot04$.—A study of the latent heats of vaporisation of the saturated alcohols of the fatty series, by M. W. Louguine. The latent heats of vaporisation obtained are as follows: For ethyl alcohol, mean of eleven experiments, $201\cdot42$ cal.; Ramsay and Young's value, $206\cdot4$ cal., calculated by means of the formula

$$L = (s_1 - s_2) \frac{t}{I} \cdot \frac{dp}{dt},$$

where t = absolute temperature and I is the mechanical equivalent of heat, probably differs from the experimental value owing to accumulated errors of data entering into their formula.

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Normal propyl alcohol, $L = (1) 164\cdot07$ cal.; (2) $163\cdot19$ cal.
Isopropyl alcohol (Sp. Ht. assumed same as N. P. Alcohol), $L = 159\cdot72$ cal.
Normal butyl alcohol, $L = 138\cdot18$ cal.
Isobutyl alcohol (Sp. Ht. of normal alcohol used), $L = 136\cdot16$ cal.
Fermentation amyl alcohol, $L = 118\cdot15$ cal.
Dimethylethylcarbinol (Sp. Ht. assumed same as amyl alcohol), $L = 110\cdot37$ cal.

All determinations were made at pressures between 745 and 755 mm.—On a particular case of the action of alkalis on glucose, by M. Fernand Gaud. The reaction of the alkali on glucose has been followed by means of different metallic oxides, capable of precipitating each of the products in turn, step by step.—On the production of gaseous formaldehyde for purposes of disinfection, by MM. R. Cambier and A. Brochet.—Manufacture of alumina from clays, by M. Joseph Heibling.—On the germination of oleaginous grains, by M. Leclerc du Sablon.—Experiments on the eggs of the mulberry silkworm, an annual race, by M. Victor Rollat. It is found that hatching may be produced at any desired time by submitting the eggs to the action of compressed air at the pressure of 6 to 8 atmospheres for a fortnight.—M. J. Posno describes, in a note, the results obtained by a process of distillation of house refuse.—M. F. Larroque reports the ravages produced by anthrax in the higher pastures of the Pyrenees.

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